

CLAIMS

- Sulz
Pw 24*
1. Apparatus for sorting used batteries, comprising an intake station, an outlet station and a pre-sorting station disposed between said intake station and said outlet station, said pre-sorting station connects to a first re-sorting station, said pre-sorting station furthermore connects to a second re-sorting station, wherein the two re-sorting stations are arranged for the manual examination and removal of undesirable batteries and further objects, as well as for the manual sorting of batteries and other objects that land in said re-sorting stations during operation.
2. Apparatus according to claim 1, wherein said pre-sorting station comprises a sloping conveyor belt having a conveying surface which moves from a lower end to an upper end during operation for the purpose of sorting batteries under the influence of the force of gravity, wherein said upper end of the sloping conveyor belt connects to said first re-sorting station which comprises a first re-sorting conveyor belt, and wherein said lower end of the sloping conveyor belt connects to said second re-sorting station which comprises a second re-sorting conveyor belt, which re-sorting conveyor belts are arranged for the manual examination and removal of undesirable batteries and further objects, as well as for the manual sorting of batteries and further objects that land on said re-sorting conveyor belts during operation.
3. Apparatus according to claim 2, wherein said sloping conveyor belt is disposed at an angle of 15 - 35 degrees to a horizontal plane.
4. Apparatus according to claim 3, wherein said angle is essentially 21.5 degrees.
5. Apparatus according to claim 2, wherein said sloping conveyor belt moves at a velocity of about 0.6 - 1 m/sec during sorting operation.
6. Apparatus according to claim 5, wherein the velocity is

essentially 0.8 m/sec.

7. Apparatus according to claim 2, wherein the conveying surface of said sloping conveyor belt has a "Rufftop" profile.

5 8. Apparatus according to claim 2, wherein the conveying surface of the sloping conveyor belt is made of laminated, reinforced polyester.

9. Apparatus according to claim 1, wherein a re-screening separator is disposed between said pre-sorting station and said first re-sorting station.

10 10. Apparatus according to claim 1, wherein said outlet station comprises a first sub-outlet station, to which said first re-sorting station connects, and a second sub-outlet station, to which said second re-sorting station connects.

15 11. Apparatus according to claim 2, wherein said pre-sorting station comprises a pre-sorting conveyor belt disposed between said intake station and said sloping conveyor belt, which pre-sorting conveyor belt is arranged for manual examination and removal of undesirable batteries and further objects that land on the pre-sorting conveyor belt during operation.

20 12. Apparatus according to claim 11, wherein said pre-sorting conveyor belt discharges onto said sloping conveyor belt near the upper end thereof.

25 13. Apparatus according to claim 12, wherein said pre-sorting conveyor belt essentially connects to said sloping conveyor belt at about 1/4 the length of said sloping conveyor belt, seen from the upper end thereof.

30 14. Apparatus according to claim 2, wherein at least one of said pre-sorting and re-sorting conveyor belts is provided with means for automatic examination or sampling of fractions batteries and further objects that are present on a respective conveyor belt.

15. Apparatus according to claim 11, wherein said outlet

station comprises a third sub-outlet station, which connects to said pre-sorting conveyor belt.

16. Apparatus according to claim 2, wherein said re-sorting conveyor belts and said pre-sorting conveyor belt are made of a smooth plastic material.

17. Apparatus according to claim 16, wherein said sorting conveyor belts are made of PVC material.

18. Apparatus according to claim 11, wherein said pre-sorting conveyor belt, said sloping conveyor belt and said first and said second re-sorting conveyor belt are arranged at a level some distance above a workshop floor.

19. Apparatus according to claim 18, wherein said level has been so selected that it is possible to place removable collecting containers under said sub-outlet stations for the purpose of collecting removed and sorted batteries and other objects therein.

20. Apparatus according to claim 18, wherein said intake station is disposed on said workshop floor, and wherein a so-called Jacob's ladder is installed between said intake station and said pre-sorting conveyor belt for transporting batteries being supplied from said intake station to said pre-sorting station.

21. Apparatus according to claim 20, wherein said Jacob's ladder consists of a conveyor belt with an accordion belt on its sides, in which vertical partitions are provided for moving said batteries to said pre-sorting conveyor belt in metered amounts.

22. Apparatus according to claim 21, wherein said partitions are adjustable.

23. Apparatus according to claim 21, wherein said conveyor belt of said Jacob's ladder connects to a collecting container, which functions to receive foreign matter adhering to said conveyor belt during return movement thereof.

24. Method for sorting used batteries by means of an apparatus

comprising an intake station, an outlet station and a pre-sorting station disposed between said intake station and said outlet station, said pre-sorting station connects to a first re-sorting station, said pre-sorting station furthermore connects to a second re-sorting station, wherein batteries and further objects that land in said re-sorting stations during operation are examined, wherein undesirable batteries and said further objects are manually removed and wherein other batteries that land in said re-sorting stations are manually sorted.

25. Method according to claim 25, wherein said pre-sorting station comprises a pre-sorting conveyor belt, wherein undesirable batteries and further objects that land on said pre-sorting conveyor belt during operation are manually examined and removed.

add 437

DRAFTS/2000-12-2001